Clarion Co., Ltd. Export Division—22-3, Shibuya 2-chome, Shibuya-ku, Tokyo, 150 Japan Tel: 03-3400-1121 Fax: 03-3400-8679 Telex: J22908, J22152
Service Dept.—50 Kamitoda, Toda-shi, Saitama, 335 Japan Tel: 0484-43-1111 Telex: J2962628 CLAFAC-J

clarion Service Manual

Published by Service Administration Section

Model CRN22

Model CRN23

Model CRN24

Model CRN25

Model CRN26

MW/LW/UKW CASSETTE STEREO

Model **CRN22** (PE-9547A)
CRN23 (PE-9545A)
CRN24 (PE-9546A-A)
CRN25 (PE-9544A)
CRN26 (PE-9546A-B)

■SPECIFICATIONS:

[RADIO SECTION]

Circuit system: Super heterodyne
Tuning system: Electronic tuning
Receive range: UKW 87.5MHz to 108.0MHz
MW 531kHz to 1,602kHz
LW 153kHz to 281kHz
Intermediate frequency:
UKW 10.7MHz
M/L 459kHz
Quieting sensitivity:
UKW Less than 15dB (at 30dB S/N)
MW Less than 33dB (at 20dB S/N)
LW Less than 40dB (at 20dB S/N)
Separation: UKW More than 20dB

[TAPE SECTION]

Reproduction system:
4 track, 2 channel stereo cassette tape playback
Tape speed: 4.76cm/sec.
Wow & flutter: Less than 0.25% (W.R.M.S)
Separation: More than 30dB
Crosstalk: More than 40dB
S/N ratio: More than 45dB
FF time: Less than 190sec. (C-60)

[SYNTHESIS]

Load impedance: 4Ω
Power output: 3W×2 (at 3% distortion)
5W×2 (at max. output)
Power supply voltage:
DC 13.2V (10.8V to 15.6V)
Negative ground
Current consumption:
Less than 3A
Dimensions: (CRN22, CRN23) Width 178mm, Height 50mm, Depth 150mm
Weight: 1.1kg
Dimensions: (CRN24, CRN25, CRN26) Width 181.5mm, Height 52.5mm, Depth 160mm
Weight: 1.6kg

■COMPONENTS:

- **CRN25 (PE-9544A-A)**
- **CRN24 (PE-9546A-A)**
- **CRN26 (PE-9546A-B)**

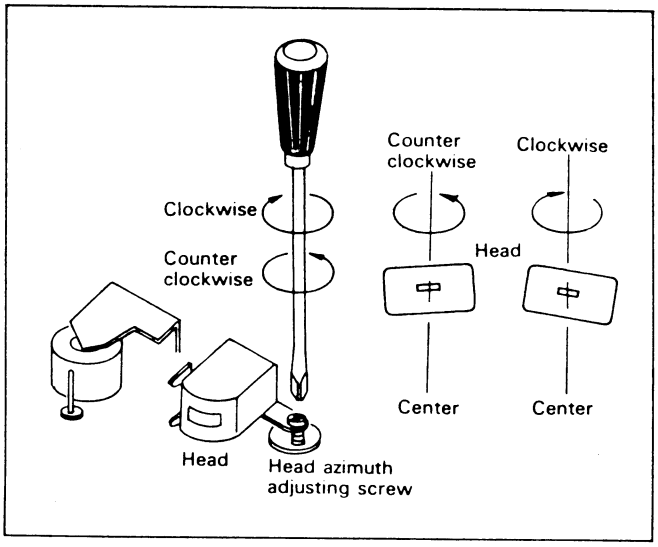
	Main unit	1
300-6954-00	Mounting bracket	1
921-8462-00	Parts bag	1
345-3653-01	Spacer	1
700-5016-80	Tap screw	1
723-5000-21	Hex. nut	1
725-0216-00	Plate nut	1
740-5000-10	Flat washer	1
854-0702-01	Extension lead (Use only CRN24, 26)	1

- **CRN23 (PE-9545A-A)**
- **CRN22 (PE-9547A-A)**

	Main unit	1
300-6954-00	Mounting bracket	1
921-8461-60	Parts bag	1
330-8216-00	Hook plate	2
345-3653-01	Spacer	1
700-5016-80	Tap screw	1
723-5000-21	Hex. nut	1
725-0216-00	Plate nut	1
922-2130-00	Parts bag	1
370-5115-00	Escutcheon	1
854-2092-00	Extension lead (Use only CRN23)	1
854-0231-02	Extension lead (Use only CRN22)	1

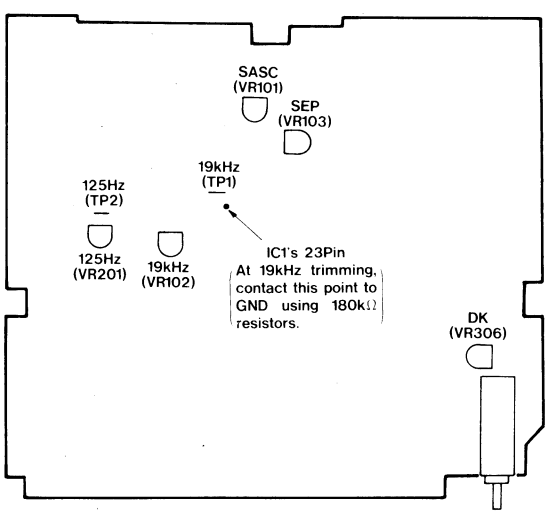
■HEAD AZIMUTH ADJUSTMENT:

Play the test tape 6.3kHz, −10VU and adjust by turning the head azimuth adjusting screw so that the output level becomes close to maximum.



■ADJUSTMENT:

- **ADJUSTMENT POINT**



- **SPECIFICATIONS**
  - ○ SASC ·····40±5dB
  - ○ 19kHz ·····19.0±0.1kHz
  - ○ SEPARATION·····more than 20dB
  - ○ 125Hz ·····125±1Hz (VF ON)
  - ○ DK ·····0.775V±3dB

■EXPLANATION OF IC's:

Refer to description in IC service manual vol. 1.			
LA3365	051-0501-00	MPX Stereo Demodulator	P15

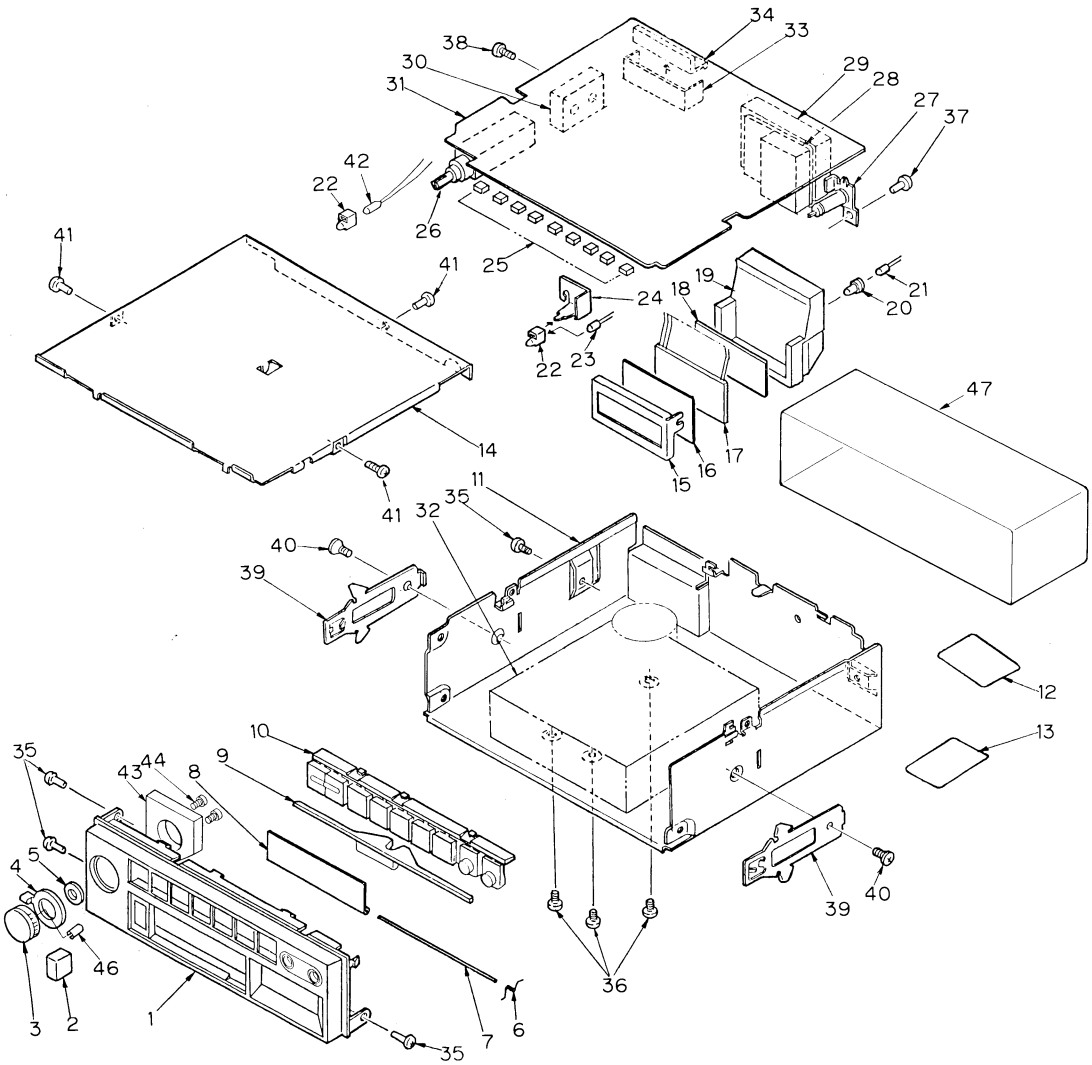
Refer to description in IC service manual vol. 2.			
TA7271PCL	051-0656-01	AF Power Amp	P33
LA2220	051-0739-00	ARI System SK TYPE	P11

Refer to description in IC service manual vol. 3.			
M5201P	051-0853-00	Switch OP. Amp.	P30

Refer to description in IC service manual vol. 4.		
AN7463S	051-0987-01	FM MPX Stereo Demodulator
TC9304F-033-US	051-1019-02	Tuning System Controller

■EXPLODED VIEW • PARTS LIST: ◎Main section

●CRN22, CRN23

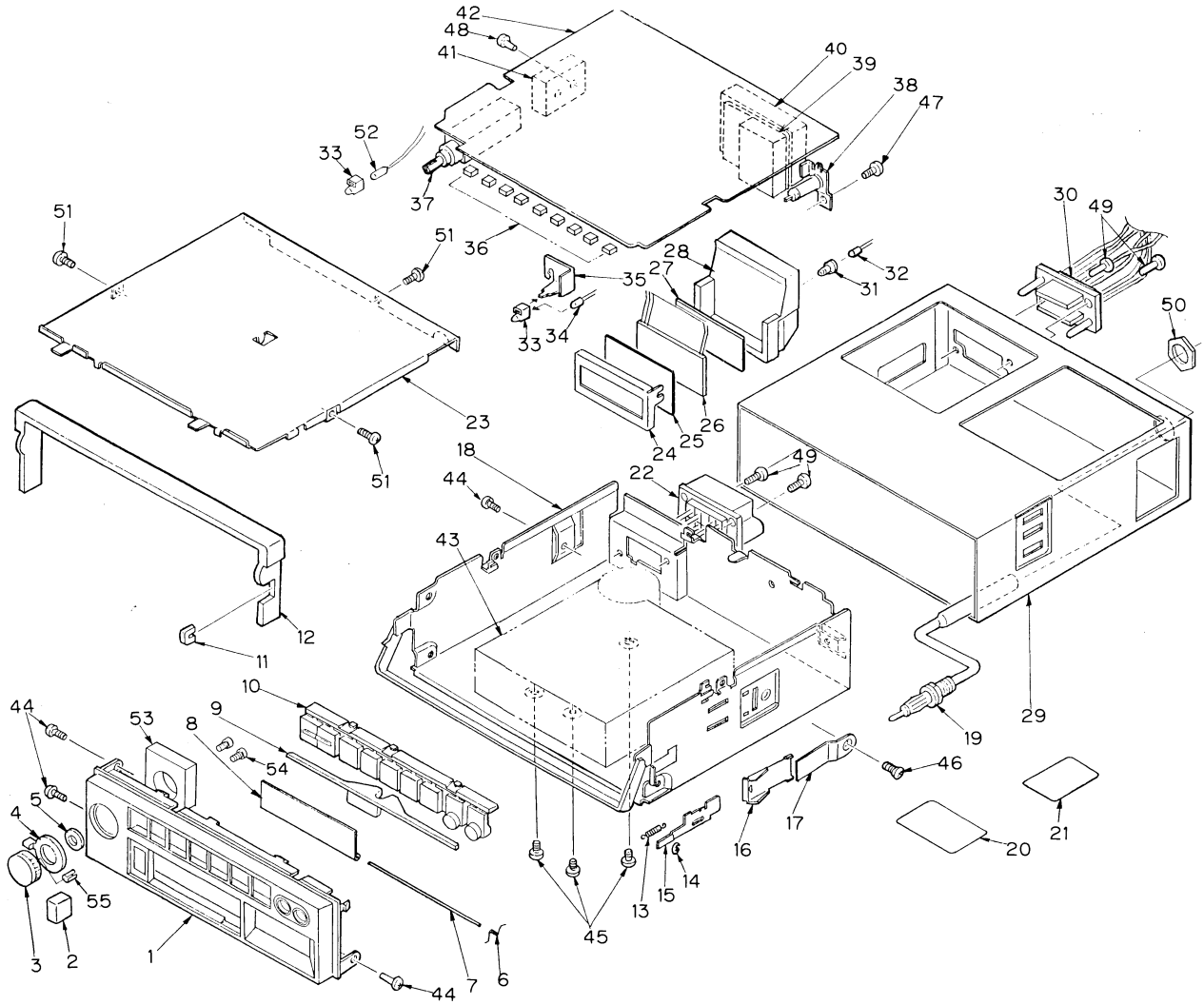


NO.	PART NO.	DESCRIPTION	QTY
1	370-5258-00	ESCUTCHEON *CRN23	1
	370-5258-01	*CRN22	
2	382-2409-00	BUTTON *FF/EJECT	1
3	380-5188-00	KNOB *VOL	1
4	380-5189-00	KNOB *TONE	1
5	722-0370-00	NUT	1
6	750-2692-00	SPRING	1
7	341-1278-00	SHAFT	1
8	320-0422-32	DUSTPROOF-CVR *CRN23	1
	320-0422-34	*CRN22	
9	335-3514-00	ILLUMI PLATE *PRESET	1
10	382-2408-00	BUTTON *PRESET	1
11	311-1297-04	LOWER CASE	1
12	286-7551-00	SETPLATE *CRN23	1
	286-7553-00	*CRN22	
13	285-1410-00	GUIDE LABEL *SERVIC	1
14	303-0356-02	UPPER-CVR	1
15	330-8600-00	FRONT COVER	1
16	373-0499-01	DIAL-CVR	1
17	379-0199-00	INDICATOR	1
18	335-2947-04	PARA FILTER	1
19	335-2405-02	LCD-HOLDER	1
20	345-4157-17	RUBBER CAP *CRN23	1
	345-4157-24	*CRN22	
21	017-0367-01	PILOTLAMP *LCD	1
22	345-3087-12	PL-CAP *CRN23	2
	345-3087-19	*CRN22	

NO.	PART NO.	DESCRIPTION	QTY
23	017-0377-01	PILOTLAMP *ACRYL	1
24	330-8840-00	LAMP HOLDER	1
25	013-3640-01	SWITCH	9
26	012-4708-10	VARIABLE-R	1
27	092-0611-02	ANT-RECEPT	1
28	880-1415A	FM BLOCK-ASSY	1
29	941-0159-15	MW/LW TUNER PACK	1
30	330-8837-00	IC-HOLDER	1
31	099-9449-01	PWB	1
32	930-0468-60	TAPE-MECHANISM	1
33	330-8836-00	PLUG HOLDER	1
34	076-0310-10	PLUG	1
35	714-3006-81	MACHINE SCREW	4
36	714-3004-81	MACHINE SCREW	3
37	731-3006-80	TAPTIGHT	1
38	714-3005-11	MACHINE SCREW	1
39	750-2486-02	SPRING	2
40	714-3006-40	MACHINE SCREW	2
41	714-3004-81	MACHINE SCREW	3
42	017-0377-04	PILOTLAMP	1
43	335-3515-00	ILLUMI PLATE *VR	1
44	702-2008-81	TAP SCREW	2
46	399-2437-00	SPRING	1
47	300-7110-05	MTG-BRKT	1

■EXPLODED VIEW • PARTS LIST: ◎Main section

●CRN24, CRN25, CRN26



NO.	PART NO.	DESCRIPTION	QTY
1	370-5258-00	ESCUTCHEON *CRN25	1
	370-5258-01	*CRN24, 26	
2	382-2409-00	BUTTON *FF/EJECT	1
3	380-5188-00	KNOB *VOL	1
4	380-5189-00	KNOB *TONE	1
5	722-0370-00	NUT	1
6	750-2692-00	SPRING	1
7	341-1278-00	SHAFT	1
8	320-0422-31	DUSTPROOF-CVR *CRN25	1
	320-0422-33	*CRN24	
	320-0422-36	*CRN26	
9	335-3514-00	ILLUMI PLATE *PRESET	1
10	382-2408-00	BUTTON *PRESET	1
11	382-1489-00	BUTTON	1
12	370-4991-00	ESCUTCHEON *OUTER	1
13	750-2624-00	SPRING	1
14	743-2500-10	E-RING	1
15	330-8839-00	LEVER	1
16	330-8578-01	HOOK PLATE	1
17	750-2625-01	SPRING	1
18	311-1297-03	LOWER CASE	1
19	093-1042-01	ANT-JUMPER	1
20	286-7550-00	SETPLATE *CRN25	1
	286-7552-00	*CRN24	
	286-7561-00	*CRN26	
21	285-1410-00	GUIDE LABEL *SERVICE	1
22	854-0226-01	EXTENSION LEAD	1
23	303-0356-03	UPPER-CVR	1
24	330-8600-00	FRONT COVER	1
25	373-0499-01	DIAL-CVR	1
26	379-0199-00	INDICATOR	1
27	335-2947-04	PARA FILTER	1

NO.	PART NO.	DESCRIPTION	QTY
28	335-2405-02	LCD-HOLDER	1
29	300-7447-02	MTG-BRKT	1
30	854-2091-00	EXTENSION LEAD *CRN25	1
	854-0229-03	*CRN24, 26	
31	345-4157-17	RUBBER CAP *CRN24, 25	1
	345-4157-24	*CRN26	
32	017-0367-01	PILOTLAMP *LCD	1
33	345-3087-12	PL-CAP *CRN24, 25	2
	345-3087-19	*CRN26	
34	017-0377-01	PILOTLAMP *ACRYL	1
35	330-8840-00	LAMP HOLDER	1
36	013-3640-01	SWITCH	9
37	012-4708-10	VARIABLE-R	1
38	092-0611-02	ANT-RECEPT	1
39	880-1415A	FM BLOCK-ASSY	1
40	941-0159-15	MW/LW TUNER PACK	1
41	330-8837-00	IC-HOLDER	1
42	099-9449-01	PWB	1
43	930-0468-60	TAPE-MECHANISM	1
44	714-3006-81	MACHINE SCREW	4
45	714-3004-81	MACHINE SCREW	3
46	714-3006-40	MACHINE SCREW	1
47	731-3006-80	TAPTIGHT	1
48	714-3005-11	MACHINE SCREW	1
49	731-3010-80	TAPTIGHT	4
50	722-0518-00	ANT-MTG-NUT	1
51	714-3004-81	MACHINE SCREW	3
52	017-0377-04	PILOTLAMP	1
53	335-3515-00	ILLUMI PLATE *VR	1
54	702-2008-81	TAP SCREW	2
55	399-2437-00	SPRING	1

■PARTS LIST:

◎Electrical section

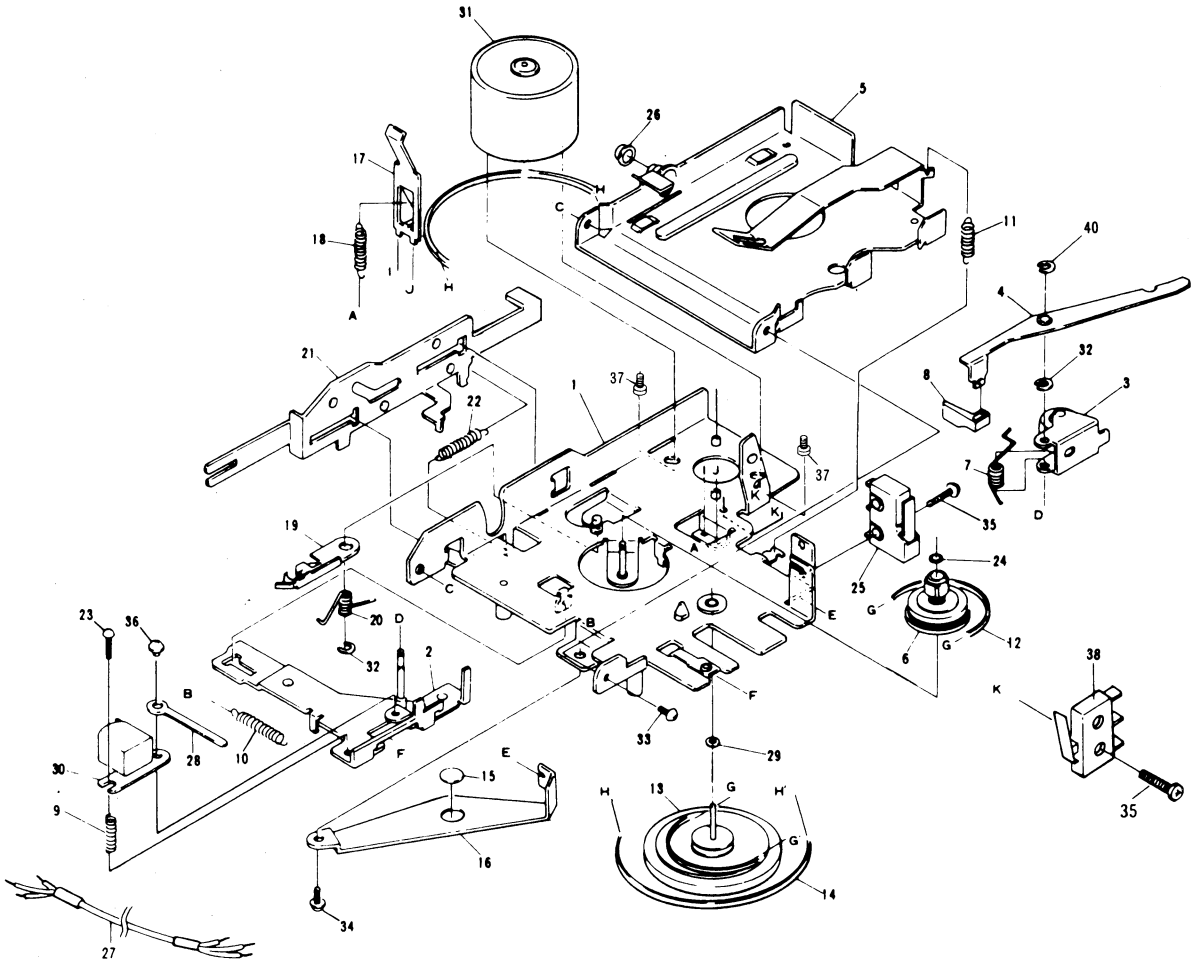
◎MAIN P.W.B

REF NO.	PART NO.	DESCRIPTION	QTY
D101,102,201 202,301 501-504,506 507,509,510 522,570-572	001-0330-00	DIODE 1SS119	17
D512～514	001-0360-00	DIODE S5566B	3
D511	001-0425-19 001-0421-19 001-0423-19	DIODE HZS5.6J MTZJ5.6 MA4056	1
D203,401	001-0425-24 001-0421-24 001-0423-24	DIODE HZS9.1J MTZJ9.1 MA4091	2
L501	009-0621-01	CHOKE	1
L102	010-2046-00	COIL 0.22μH	1
L101	010-2046-12	COIL 2.2μH	1
L201	010-2046-17	COIL 5.6μH	1
VR306	012-4100-02	VARIABLE RESISTOR 2KVR	1
VR102	012-4100-03	VARIABLE RESISTOR 5KVR	1
VR201	012-4100-04	VARIABLE RESISTOR 10KVR	1
VR101	012-4100-13	VARIABLE RESISTOR 30KVR	1
VR103	012-4800-00	VARIABLE RESISTOR 1KVR	1
C220	042-0249-00	TANTALUM-C 16V 0.22μF	1
C508	042-0448-00	D-LAYER-C 5.5V 0.1F	1
C106	043-0212-00	MYLER CAPACITOR 390PF	1
CCT201	050-0103-00	COMPONENT CIRCUIT	1
IC3	051-0501-00	IC LA3365	1
IC6	051-0656-01	IC TA7271P-CL	1
IC2	051-0739-00	IC LA2220	1
IC4,5	051-0853-00	IC M5201P	2
IC1	051-0987-01	IC AN7463S	1
IC7	051-1019-02	IC TC9304F-033-US	1
X201	060-0115-01	CERAMIC RESONATOR	1
SUP201	060-0122-10	SURGE PROTECTOR	1
X501	061-1066-00	CRYSTAL	1
Q201,202,306 401,402,502 504	100-1048-00	TRANSISTOR 2SA1048	7
Q103,301,302 501,503,505	102-2458-00	TRANSISTOR 2SC2458	6
Q204,205	102-2458-51	TRANSISTOR 2SC2458GR,BL	2
Q404	102-2655-00	TRANSISTOR 2SC2655	1
Q303,304,305	103-1504-00	TRANSISTOR 2SD1504	3
Q101,102,203 206,403	125-2003-03	TRANSISTOR RN1203	5
R405	114-1501-11	FILM RESISTOR 1W 15Ω	1
C103	160-4712-05	CERAMIC-C 470PFB	1
C309,312,570	171-1023-06	CERAMIC-C 1000PFB	3

REF NO.	PART NO.	DESCRIPTION	
C115,203,205 510,512	171-1033-06	CERAMIC-C 0.01μF	
C301,302,321 323	171-1523-06	CERAMIC-C 1500PF	4
C101,102,110 111,503,506	171-2233-06	CERAMIC-C 0.022μF	6
C116	171-3323-06	CERAMIC-C 3300PF	1
C315,316	171-3333-06	CERAMIC-C 0.033μF	2
C120	171-4723-06	CERAMIC-C 4700PF	1
C118,119,213	171-4733-06	CERAMIC-C 0.047μF	3
C105	171-6823-06	CERAMIC-C 6800PF	1
C113	171-8222-06	CERAMIC-C 8200PF	1
C511	173-1032-10	POLYESTOR-C 0.01μF	1
C207,326,334	173-1042-10	POLYESTOR-C 0.1μF	3
C330,331	173-2242-10	POLYESTOR-C 0.22μF	2
C310,311	173-6821-10	POLYESTOR-C 6800PF	2
C214	173-6831-10	POLYESTOR-C 0.068μF	1
C501	174-1200-13	CERAMIC-C 12PFCH	1
C502	174-1800-13	CERAMIC-C 18PFCH	1
C112,122,123 219,313,314 335,336	179-1053-62	ELECTRO-C 50V 1μF	8
C104,208,211 218,225,305	179-1063-32	ELECTRO-C 16V 10μF	6
C121,209,224 307,308,328 329	179-1073-22	ELECTRO-C 10V 100μF	7
C332,333	179-1083-23	ELECTRO-C 10V 1000μF	2
C327	179-1083-33	ELECTRO-C 16V 1000μF	1
C217	179-2263-32	ELECTRO-C 16V 22μF	1
C202,402	179-2273-22	ELECTRO-C 10V 220μF	2
C509	179-2273-23	ELECTRO-C 10V 220μF	1
C204	179-3353-62	ELECTRO-C 50V 3.3μF	1
C212	179-4743-62	ELECTRO-C 50V 0.47μF	1
C114,221	179-4753-62	ELECTRO-C 50V 4.7μF	2
C223,306,401 504	179-4763-22	ELECTRO-C 10V 47μF	4
C108,117	182-1043-63	ELECTRO-C 50V 0.1μF	2
C303,304,317 319,320	182-1053-62	ELECTRO-C 50V 1μF	5
C322,324	182-1073-22	ELECTRO-C 10V 100μF	2
C107,125,206 215,318	182-2243-62	ELECTRO-C 50V 0.22μF	5
C201,210,216	182-3343-62	ELECTRO-C 50V 0.33μF	3
C109	182-3353-63	ELECTRO-C 50V 3.3μF	1
C325	182-4763-22	ELECTRO-C 10V 47μF	1
C222	183-6863-22	ELECTRO-C 10V 68μF	1

■EXPLODED VIEW • PARTS LIST:

◎Tape mechanism section 930-0468-60

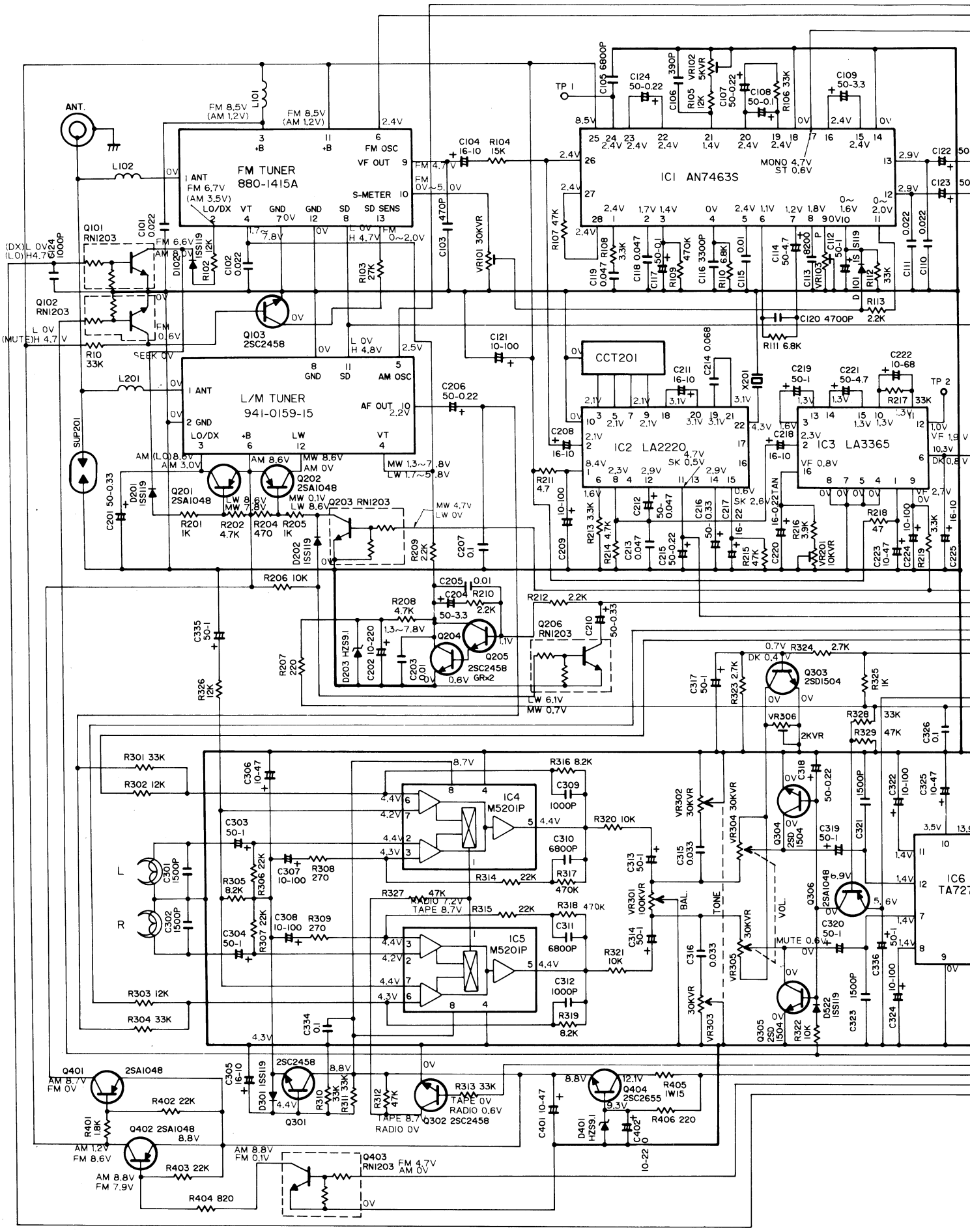


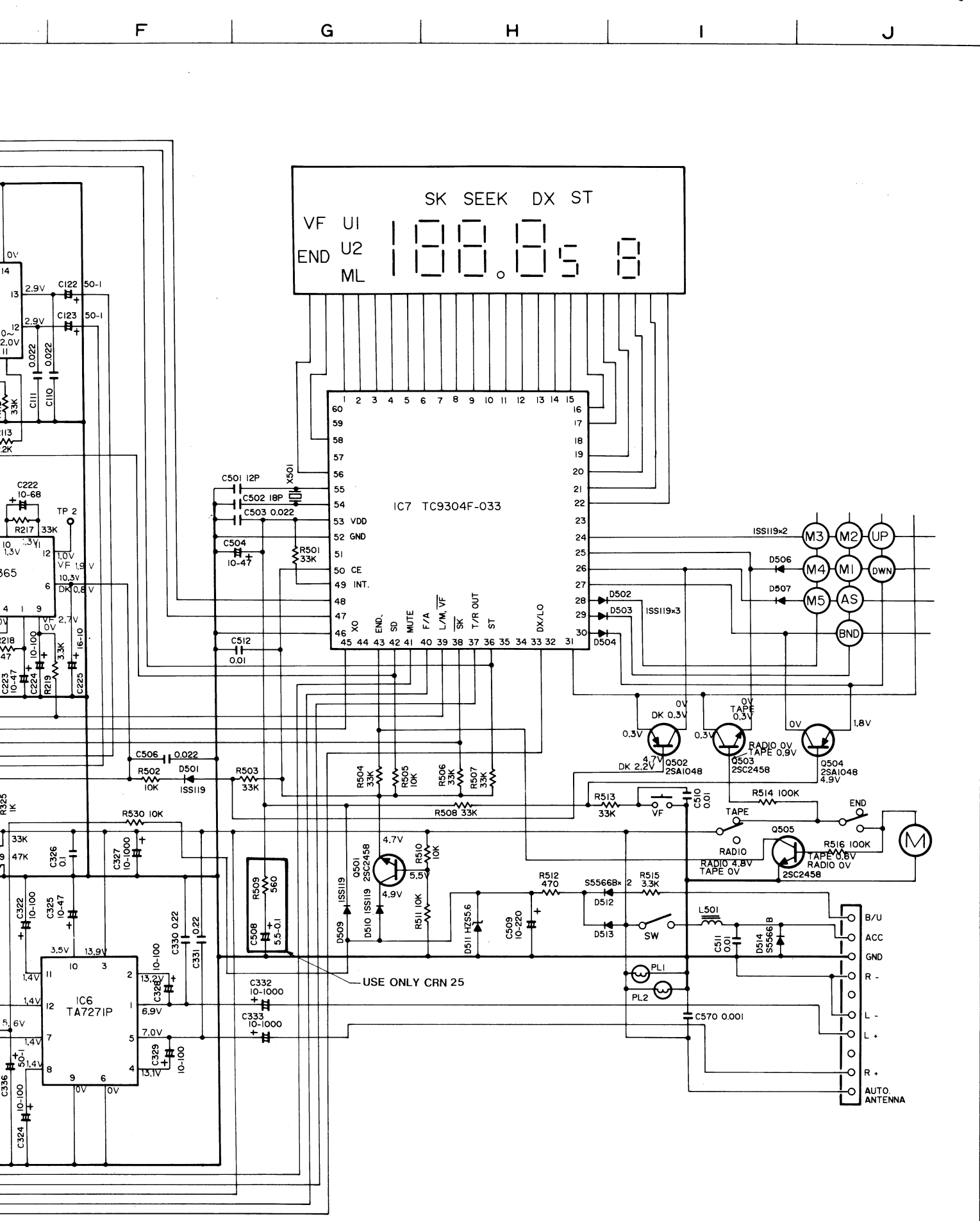
NO.	PART NO.	DESCRIPTION	Q'TY
1	960-3224-02	DECK PLATE ASSY	1
2	960-3225-02	HEAD PLATE-ASSY	1
3	960-3229-01	ROLLER-ASSY	1
4	960-3227-02	S-LEVER-ASSY	1
5	960-3226-06	PACK GUIDE-ASSY	1
6	960-3228-04	REEL BASE-ASSY	1
7	750-1986-00	SPRING	1
8	631-0332-01	SENSOR	1
9	750-1987-00	SPRING	1
10	750-1988-01	SPRING	1
11	750-1989-01	SPRING	1
12	602-0053-01	BELT	1
13	611-0059-02	FLYWHEEL	1
14	602-0062-00	BELT	1
15	746-0767-10	WASHER	1
16	630-1261-01	FLYWHEEL PLATE	1
17	630-1260-02	EJECT PLATE	1
18	750-1990-01	SPRING	1
19	630-1258-02	LOCK CAM	1
20	750-1991-00	SPRING	1

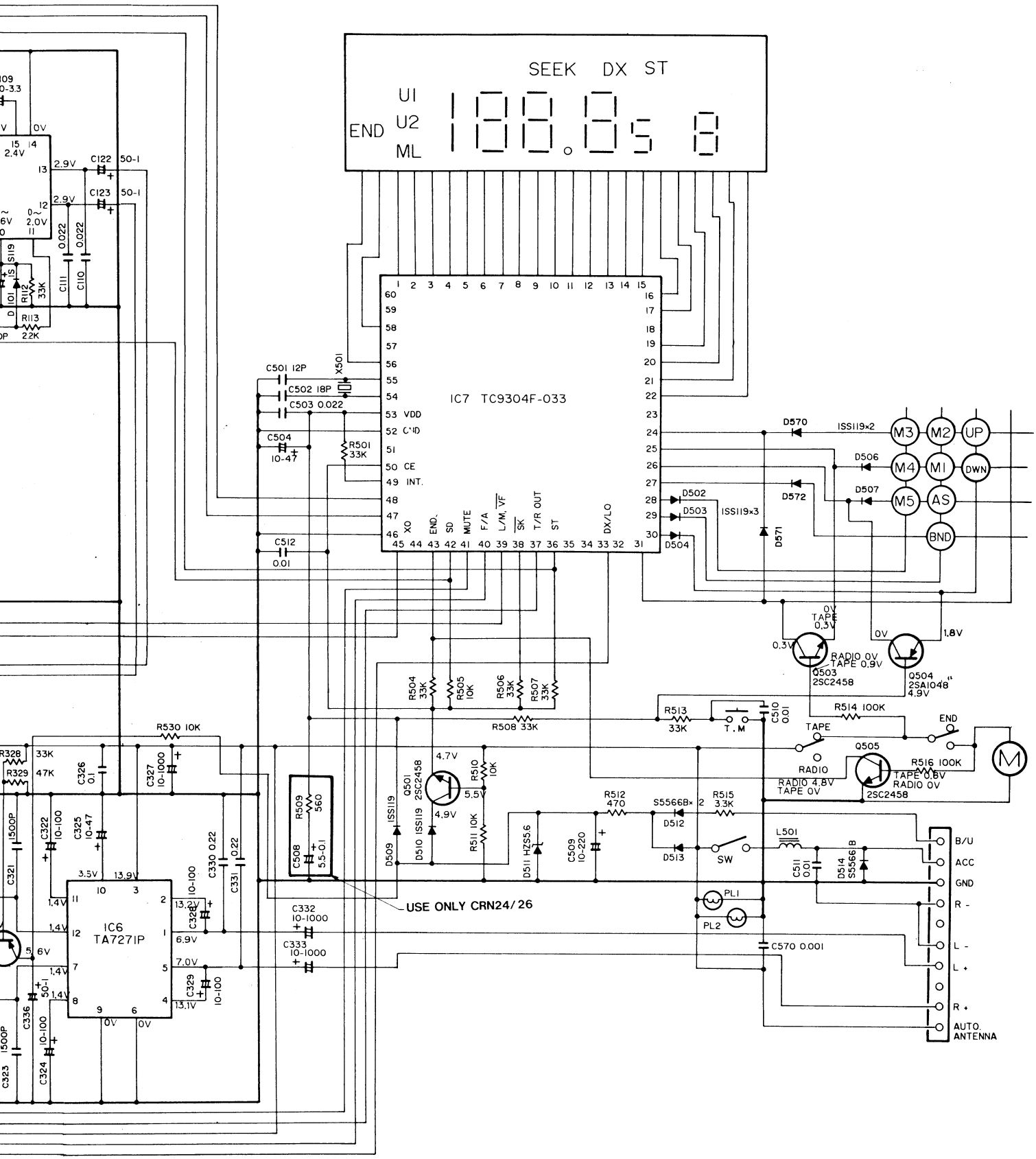
NO.	PART NO.	DESCRIPTION	Q'TY
21	630-1257-04	EJECT LEVER	1
22	750-1992-00	SPRING	1
23	716-0384-00	STEEL SCREW *M2X8	1
24	746-0717-01	WASHER	1
25	013-3505-00	SWITCH	1
26	632-0999-00	GUIDE ROLLER	1
27	815-1896-10	SHIELDED WIRE	1
28	330-4896-00	LEAD CLAMP	1
29	746-0617-00	WASHER	1
30	011-0300-00	HEAD	1
31	SMA-129-100	DC-MOTOR ASSY	1
32	743-2000-10	E-RING	2
33	714-3003-11	MACHINE SCREW *M3X3	1
34	731-2605-81	TAPTIGHT *M2.6X5	1
35	716-0438-00	SCREW	2
36	714-2003-81	MACHINE SCREW *M2X3	1
37	716-0347-00	SCREW *M2.6X3.5	2
38	013-2690-02	SWITCH	1
40	746-0622-01	WASHER	1

■CIRCUIT DIAGRAM:

● CRN23, CRN25

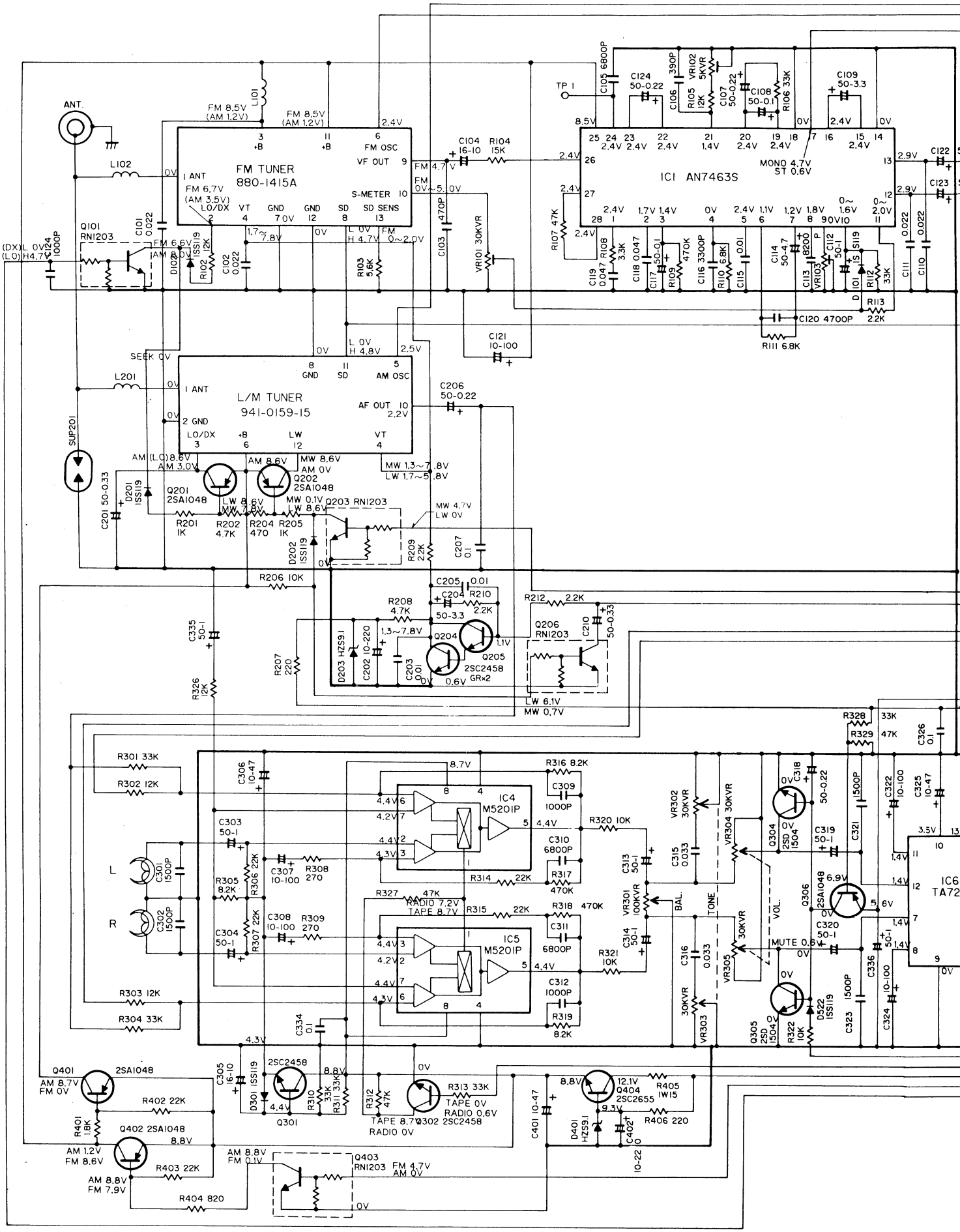



SK SEEK DX ST
VF U1
END U2
ML
IC7 TC9304F-033
IC6 TA7271P
X501
C501 12P
C502 18P
C503 0.022
C504
R501 33K
C512 0.01
C506 0.022
R502 10K
D501
ISS119
R503 33K
R504 33K
R505 10K
R506 33K
R507 33K
R508 33K
R509 560
C508 5.5-0.1
R510 10K
R511 10K
R512 470
R513 33K
R514 100K
R515 3.3K
R516 100K
C509 10-220
C510 0.01
C511 0.01
C570 0.001
L501
Q501 2SC2458
Q502 2SA1048
Q503 2SC2458
Q504 2SA1048
Q505 2SC2458
D502
D503
D504
D506
D507
D509
D510 ISS119
D511 HZS5.6
D512
D513
D514 S5566B
S5566B×2
ISS119×2
ISS119×3
M3
M2
UP
M4
M1
DWN
M5
AS
BND
VF
TAPE
RADIO
END
SW
PL1
PL2
M
USE ONLY CRN 25
B/U
ACC
GND
R -
L -
L +
R +
AUTO. ANTENNA


SEEK DX ST
U1
END U2
ML
IC7 TC9304F-033
X501
C501 12P
C502 18P
C503 0.022
C504
R501 33K
C512 0.01
D570
ISS119×2
M3
M2
UP
D506
M4
M1
DWN
D507
M5
AS
BND
D572
D502
D503
ISS119×3
D504
D571
R504 33K
R505 10K
R506 33K
R507 33K
R508 33K
R513 33K
T.M
C510 0.01
R514 100K
TAPE
END
RADIO
Q505
R516 100K
2SC2458
M
R530 10K
R328 33K
R329 47K
C326 0.1
C327 10-1000
R509 560
C508 5.5-0.1
Q501 2SC2458
R510 10K
R511 10K
D509 ISS119
D510 ISS119
D511 HZS5.6
C509 10-220
R512 470
S5566B×2
D512
D513
R515 33K
SW
L501
C511 0.01
D514 S5566B
B/U
ACC
GND
R -
L -
L +
R +
AUTO ANTENNA
PL1
PL2
C570 0.001
IC6 TA7271P
C321 1500P
C322 10-100
C325 10-47
C330 0.22
C331 0.22
C332 10-1000
C333 10-1000
C328 10-100
C329 10-100
C336 50-1
C323 1500P
C324 10-100
USE ONLY CRN24/26

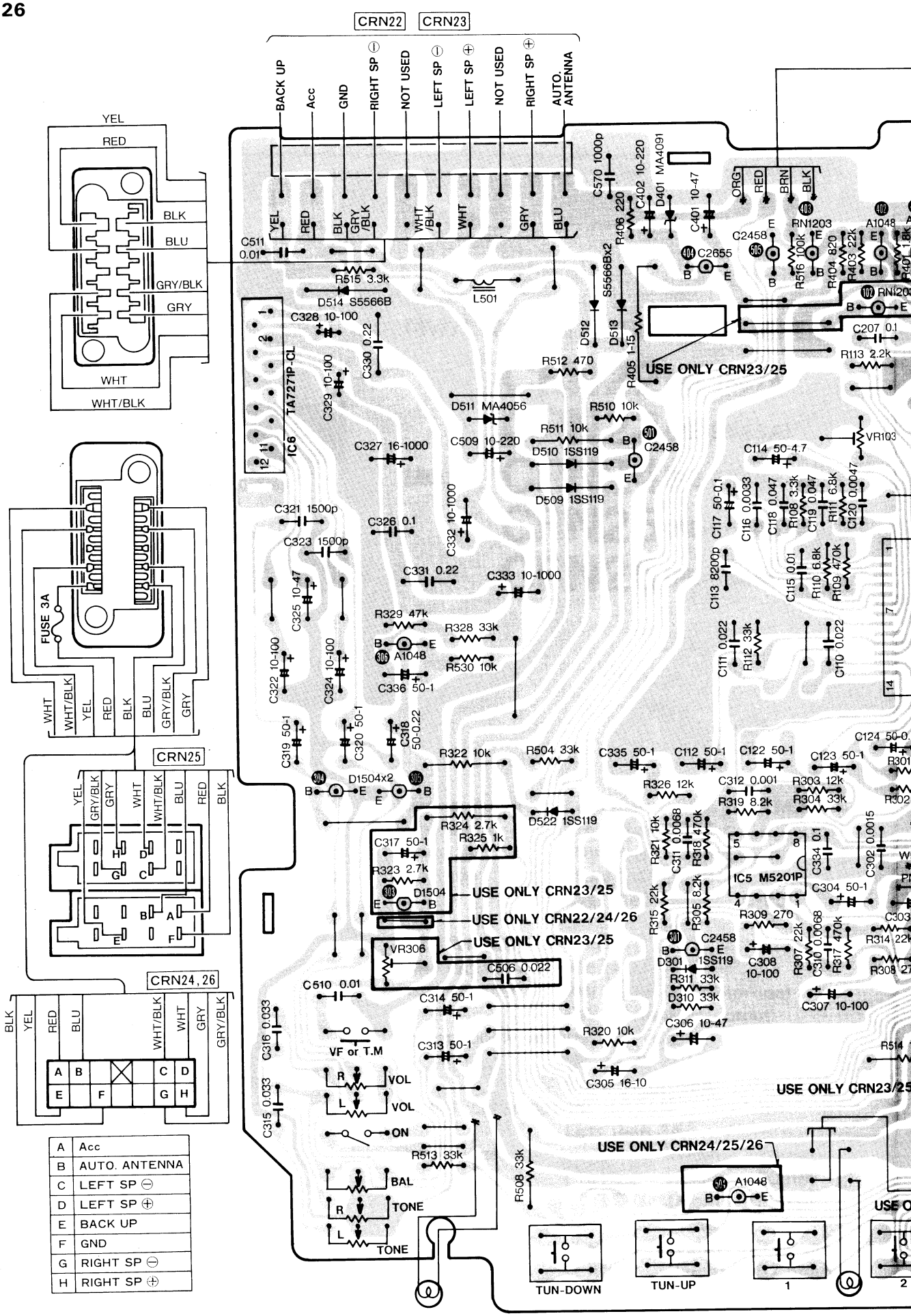
■CIRCUIT DIAGRAM:

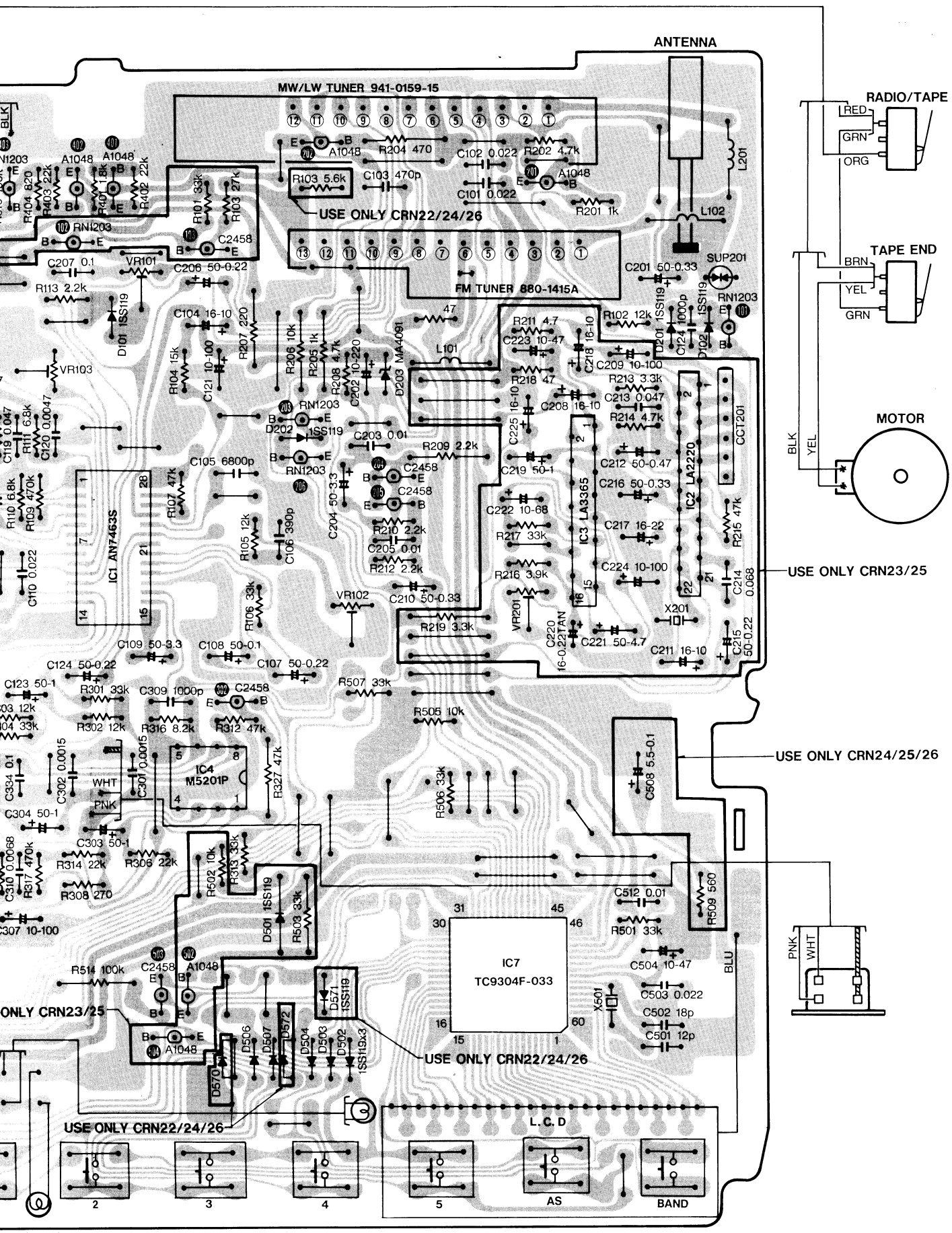
● CRN22, CRN24, CRN26



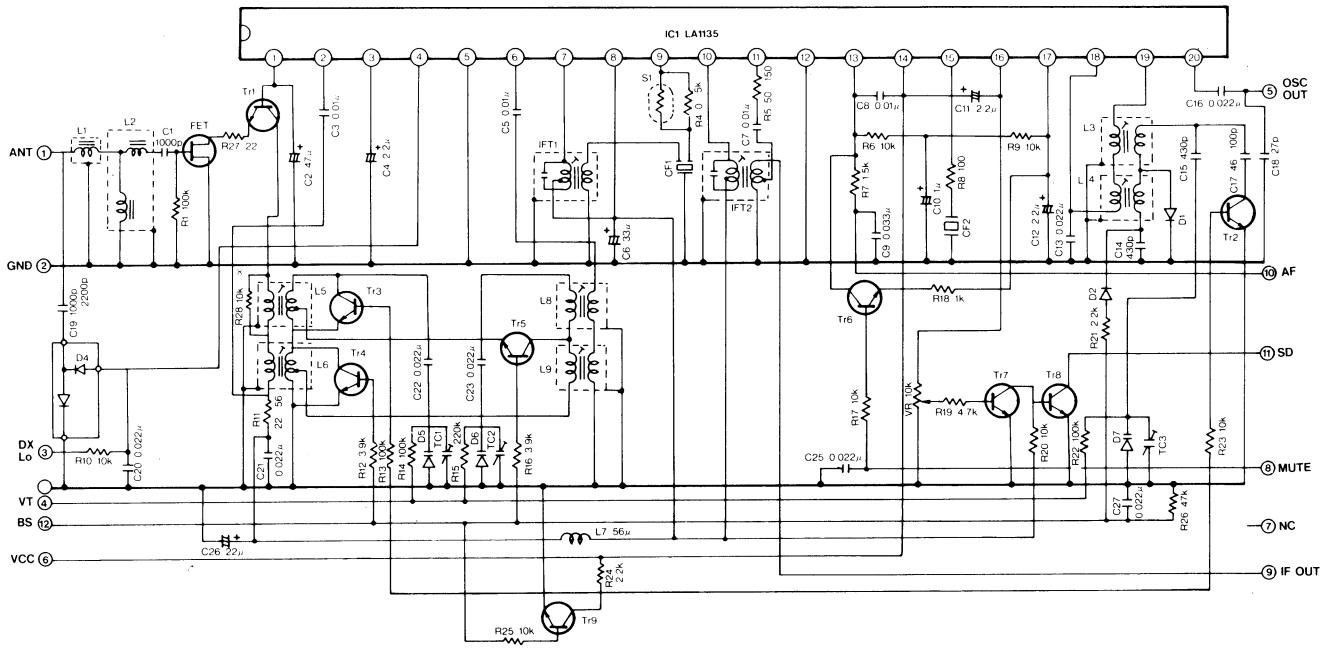
■PRINTED WIRING BOARD:

● CRN22～CRN26

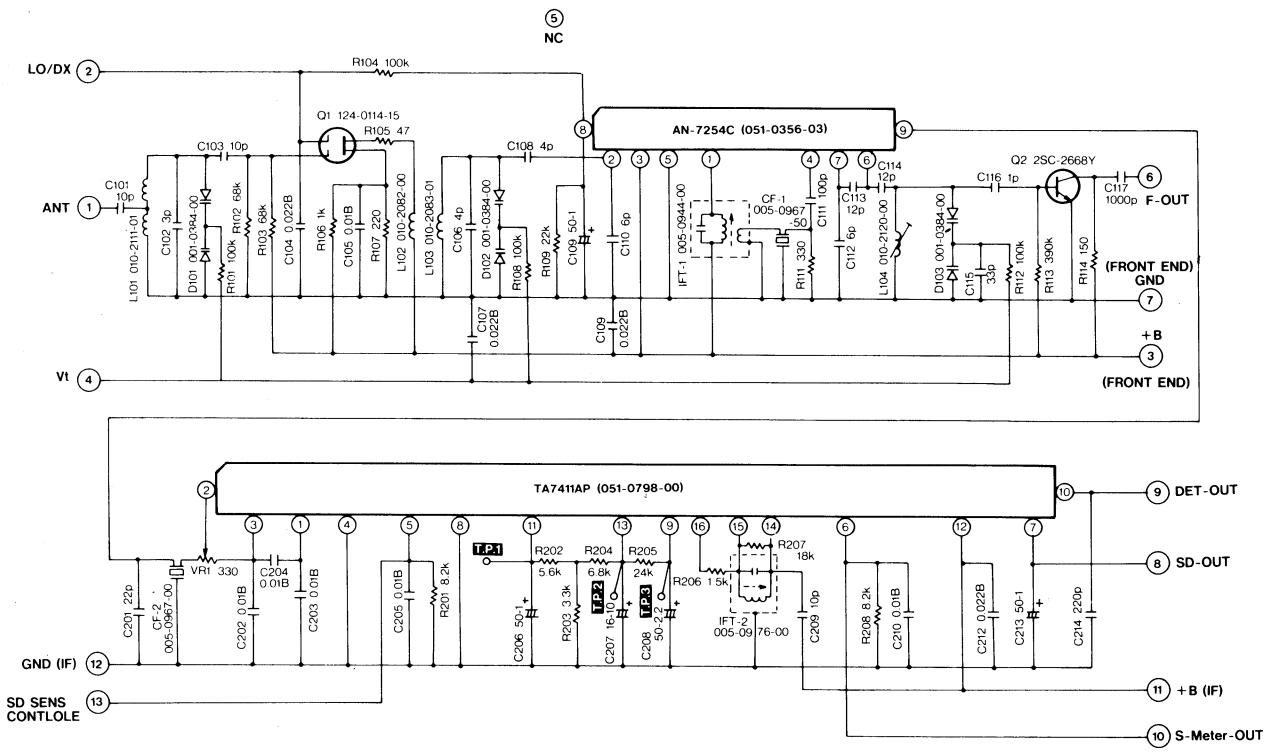



ANTENNA
MW/LW TUNER 941-0159-15
FM TUNER 880-1415A
USE ONLY CRN22/24/26
RADIO/TAPE
RED
GRN
ORG
TAPE END
BRN
YEL
GRN
MOTOR
BLK
YEL
USE ONLY CRN23/25
USE ONLY CRN24/25/26
USE ONLY CRN22/24/26
USE ONLY CRN22/24/26
USE ONLY CRN23/25
IC1 AN7463S
IC2 LA2220
IC3 LA3365
IC4 M5201P
IC7 TC9304F-033
L.C.D
2
3
4
5
AS
BAND
PNK
WHT
BLU

■AM TUNER PACK: (941-0159-15)



■FM BLOCK ASS'Y: (880-1415A)



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